2. The feature based data structure for computer manikin as claimed in claim 1, wherein the data structures of latitudinal girth lines have multiple (eighty) points which are divided as left and right symmetric parts from the centerlines. The eight main longitudinal lines pass through the girth lines at the #0, #10, #20, #30, #40, #50, #60, and #70 points. The other points on the girth line are obtained by interpolating the polar angles from the left or right centroid to the neighboring feature points.

3. The feature based data structure for computer manikin as claimed in claim 1, wherein the front and back centerlines are fitted by vertical curves to the points obtained from zero-crossing points of the torso image by applying Sobel masks twice on the torso.

4. The feature based data structure for computer manikin as claimed in claim 1, wherein the four princess lines and the data structure contain two sections. The upper section is sliced from the body data points by a plane passing through the mid-shoulder point, the bust point, and the blade point. The lower section is from the bust (blade) point to the leg front (back) center point. The other structure points between these two levels are obtained from slicing the body by a plane through the

two points and the centroid of the burst girth line.

5. The feature based data structure for computer manikin as claimed in claim 1, wherein the two sidelines stop at the armpit levels. The sidelines are fitted by smooth curves to the points obtained from zero-crossing points of the torso image by applying Sobel masks twice on the torso. The data structure of the sideline has multiple points that are linear interpolated between the heights of two neighboring main girth lines from the crotch level to the armpit level.

6. The feature based data structure for computer manikin as claimed in claim 1, wherein the neck base girth line is fitted by a smooth curve passing through the front neck point, two side neck points, and the back neck point. The data structure consists of multiple points that are interpolated according to the polar angles spanned by the centroid to the four feature points of the neck base girth line projecting on the horizontal plane.

7. The feature based data structure for computer manikin as claimed in claim 1, wherein the left and right shoulder lines are fitted by smooth curves to the points of zero-crossing points in the shoulder image by applying Sobel masks twice. The starting points and half of the portion of the shoulder lines

are smoothly shifted to the side neck point. The mid-shoulder point is set at the middle length of the shoulder line. The data structure has multiple points from the side neck point to the shoulder point, they are obtained by linear interpolation of the total length.

8. The feature based data structure for computer manikin as claimed in claim 1, wherein the two armscye girth lines are sliced from the shoulder scanned data set by a plane passing through the shoulder points, front break points, and back break points. The data structure has multiple points interpolated the polar angles spanning by the centroid of armhole from shoulder point to the front break point, then to the back break point, and back to the shoulder point. The side line meets the armscye girth line at the middle of the bottom level; the widest level of the armhole is found and set at the 48^{th} girth level that separates the armhole into upper part and lower part. Below the 48^{th} girth, the armscye girth line structure points are the terminate points of longitudinal lines from #16 to #24 in the left, and from #56 to #64 in the right. The upper structure points (from #48 to #53 girths) of the armscye girth line are the last six points of the longitudinal lines of #15, #65(in the front) and #25, #55 (in the back).

9. The feature based data structure for computer manikin as claimed in claim 1, wherein the bust line is obtained by a plane that slices the body data set. The plane is perpendicular to the frontal plane and passes through two points, one at the left, and the other on the right, each having the maximum x-coordinate value on the front torso.

10. The feature based data structure for computer manikin as claimed in claim 1, wherein the under-bust line is a plane slices the body data set through the two points each having the maximum bending value on the front left and right princess lines below the bust girth line and above waist girth line. The segmentation plane is also perpendicular to the frontal plane.

11. The feature based data structure for computer manikin as claimed in claim 1, wherein the positions of hip and the waist are decided by the horizontal histogram of the torso image whose gray values are at the maximum and minimum values, respectively.

12. The feature based data structure for computer manikin as claimed in claim 1, wherein the spinal-waistline is found by a plane that slices the body data set horizontally through a point having the maximum bending value on the back centerline between the bust and crotch levels.

13. The feature based data structure for computer manikin as claimed in claim 1, wherein the high-hip line is found by a plane that slices the body data set horizontally through a point having the maximum x-coordinates and is the zero-crossing point by applying Sobel masks twice on the of the front centerline between the bust and the crotch levels.

14. The feature based data structure for computer manikin as claimed in claim 1, wherein the crotch line is found by a plane that slices the body data set horizontally through the crotch point.

15. The feature based data structure for computer manikin as claimed in claim 1, wherein the data structure of computer manikin for garment design recodes only left half part of the manikin. The data points are obtained by computing the gray scale histograms of left and right body images individually, selecting the larger one, and if the right side is select, mirroring it to the left. It has forty-one longitudinal lines including the #0, #10, #20, #30, and #40 main feature lines.